Project Description:
Danbury Centralized Train Control (CTC) and Signalization Project
Project Number: 0302-0007

Project Scope:

This project will install a Centralized Train Control (CTC) and signal system on the Danbury Branch. Currently, the Danbury Branch does not have a signal system and trains operate under a system known as a manual block. Under manual block, multiple train movements on the Branch are limited by the Railroad's operating rules and manual block spacing. Additionally, because the Danbury Branch is a single track rail line, train meets along the Branch are managed at passing sidings. Existing passing sidings are located in Norwalk, Wilton, Branchville and Danbury. Track switches at these locations must be manually operated by a member of the train crew.

The installation and commissioning of the CTC Signal System, performed in four (4) separate "Phases" – Phase 1, Norwalk-Wilton; Phase 2, Wilton-Branchville; Phase 3, Branchville-Bethel; and Phase 4, Bethel-Danbury – will enable MNR's Operation Control Center (OCC) to electronically monitor the location of all trains along the Branch, providing cab signal indication to each train based on the conditions of the track ahead. New remote controlled track switches and signals will be installed at each of the Branch's passing sidings. Operation of these switches will be under the control of the OCC. Track Signals will operate in the same manner as signals on the New Haven main line. These signals indicate to a train to stop or proceed, based on the on-board cab signal indications inside the locomotive compartment, or cab car. Signals at the passing sidings will be interlocked with the track switches, and will indicate to the train crew whether to proceed or stop based on the track conditions present. Ultimately, passing sidings at Norwalk, Wilton, Branchville, Danbury, as well as a new passing siding in Bethel, will function as fully automatic control points on the Branch, allowing for efficient movement of trains at the passing sidings.

Lastly, two (2) signal power substations will be constructed with the Project, and will provide power to the new signal equipment and electronic track circuits, via buried and aerial mounted power, signal and fiber-optic communication cables. A "primary" power substation will be constructed at the Danbury Station in Danbury. A back-up "secondary" power substation will be constructed at Science Road in Norwalk. In addition, a diesel-powered "emergency backup" generator will be installed at the Norwalk site to provide power in the event substation power is disrupted.

Once completed, the Danbury Branch signal system will operate consistent with the signal system in use on the New Haven main line. The Danbury Branch is operated and maintained by MNR, under a Service Agreement with the State of Connecticut. This project will be completed under two MNR-administered contracts and by MNR track and signal work forces.

Challenges and Risks:

Coordinate and complete all work activities to meet the project schedule, all while maintaining and operating an active commuter rail service.

Budget Analysis:

* CTC Signal Contract Expenditures to Date: $61,370,745.30
* CTC Signal Contract Estimated Value: $66,921,874 (Includes two (2) MNR contracts plus MNR F/A Activities)

Schedule Analysis:

* Design: Completed.
* Notice to Proceed: Material Procurement began on July 29, 2009; Major construction began on May 28, 2010.
* Current Construction Status: 92% complete.
* Signal Phases Completed To Date & Placed In Control Of Metro-North OCC: Phase 1, Norwalk-Wilton (November, 2012); Phase 2, Wilton-Branchville (April, 2013); Phase 3, Branchville-Bethel (July, 2013); and Phase 4, Bethel-Danbury (November, 2013).
* Beneficial Use Of Entire Danbury CTC Signal System-All Phases: November, 2013.

Outlook:

Aggressive project construction activity continued with Project Beneficial Use achieved in the Fall of 2013.

Recent Construction Activity (November-December, 2013):

Cable Plow Contractor, Ducci Electrical Contractors;

- Continued work to revise and resubmit cable plow as-built drawings.

Signal Power Substations - PACS/QEI - Subcontractor to Ducci Electrical;

- No support work performed this period.

Pre-Wired Signal House Contractor, Alstom Signaling, Inc.;

- Continued work to support MNR C&S with commissioning of signal equipment, resolution of operational issues.
- Continued to update circuit drawings and submit as-built drawings.

Metro-North Force Account C&S Department;

- Commissioned remaining Phase 4 signal equipment for grade crossings between Triangle St. and Danbury Station, Danbury.
- Commissioned Phase 4 Cab Signal from Bethel to Danbury.
- Completed install/splice work required to activate 144 fiber optic communications network at branch train stations.

Metro-North Force Account Power Department;

- Completed work to connect the Taylor Ave. Bethel radio house onto the substation power grid.
- Decommissioned existing commercial power services for radio houses between Bethel and Danbury.

Metro-North Force Account Structures Department;

- Continued work to rebuild stone retaining wall between South St. and Taylor Ave. in Bethel.

Metro-North Force Account Track Department;

- Relocated the last remaining set of track insulating joints (IJ's) at Danbury Station.
- Commenced work to clean-up drainage swales and structures adjacent to the track in Danbury and Bethel.

URS Corporation

- Continued maintaining the Danbury CTC Twitter account, Major Project website/FTP file web links.

As a result of obtaining Beneficial Use of the entire CTC Project, additional train service was added on November 17, 2013.

Future Activity:

Cable Plow Contractor, Ducci Electrical Contractors;

- Complete and submit cable plow as-built drawings.

Signal Power Substations - PACS/QEI - Subcontractor to Ducci Electrical;

- No further support effort is anticipated.

Pre-Wired Signal House Contractor, Alstom Signaling, Inc.;

- Continue on an as-needed basis to support MNR C&S with resolving signal operational issues when required.
- Complete and submit signal circuit drawings as-built drawings.

Metro-North Force Account C&S Department;

- Complete the installation of private siding track derail signal circuits in Bethel and Danbury.
- Remove temporary fiber optic and signal cables installed as part of this project and demobilize.

Metro-North Force Account Power Department;

- Complete work to connect the remaining fiber optic node house onto the substation power grid.

Metro-North Force Account Structures Department;

- Complete work to rebuild stone retaining wall between South St. and Taylor Ave. in Bethel.
- Begin fabrication and installation of maintenance access stairways at signal house locations in Wilton and Redding.

Metro-North Force Account Track Department;

- Continue work to clean-up drainage swale and catch basins adjacent to the track in Danbury and Bethel.

URS Corporation

- Continue maintaining the Danbury CTC Twitter account, Major Project website/FTP file web links.

To see photos of recent Project activities, please click here.
SIGNALS, a quarterly newsletter produced for the Danbury CTC signalization project, includes more information about recent activities. Please click here to access the current issue of SIGNALS.
For all archived photos, newsletters, and calendars, please click here.
12/5/2013